Color Craft

USER MANUAL

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COLORCRAFT

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Preface

Hello. Welcome to COLORCRAFT, a quality entertainment and educational software package by SIM Computer Products.

COLORCRAFT is a powerful graphics animation program for the Commodore VIC 20 and Commodore 64. COLORCRAFT can be purchased in cassette or diskette form and must be run with the protection dongle provided.

The more familiar you become with COLORCRAFT, the more uses you will discover for it. COLORCRAFT can provide hours of fun and education for young students while they create lively cartoons, as well as learn some programming.

COLORCRAFT lets you change screen colors, set the amount of time each screen is displayed, create rolling displays and do advanced drawings. With COLORCRAFT, cartooning and animation are made easy.

The COLORCRAFT manual has been written to present the material in a clear, easy-to-understand manner for the beginner, as well as the experienced computer user. Simply read the instructions and practice the examples (see Section 6.5 Loading Sample Data Files) for a thorough understanding of the many capabilities of COLORCRAFT. Then, let your creativity flow!

We hope you enjoy COLORCRAFT.

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CHAPTER 1 GETTING STARTED

1.1 Steps for Setting Up

Follow these steps to make sure your equipment is properly set up:*

- o Connect the datasette to the cassette port.
- o Tune your TV to channel 3 or 4.
- o Connect the switch box to the modulator which is connected to your computer.
- o Set the switch box to COMPUTER.
- o Be sure all of your equipment is plugged in.
- o Insert the dongle into the CONTROL PORT located on the right hand side of your machine. (With the Commodore 64, use CONTROL PORT '1'.)**

***Please Note:** Because there are many benefits with more memory, we strongly recommend that you use an 8K or 16K memory expander with your VIC 20. **The following commands are not available unless an 8K or 16K expander is used:**

COPY
CTRL I - Insert line
CTRL D - Delete line
CTRL C - Center line

****Please Note:** The 'dongle', a security protection device, is the small plug in your COLORCRAFT package. **The dongle must be present at all times while using the COLORCRAFT program.** Otherwise, the error message 'DONGLE MISSING' will flash on the screen. You must then shut off your computer and reload the program.

o Turn on your computer. A different power message will display depending on which computer you are using and the amount of memory available:

A VIC 20- 3583 Bytes free.

A VIC 20 with an 8K memory expander- 11775 Bytes free.

A VIC 20 with a 16K memory expander- 19967 Bytes free.

A Commodore 64- 38911 BASIC Bytes free.

If the message you receive does not match what should be displayed for your system, check to make sure your equipment is set up properly.

o Place the COLORCRAFT tape into your datasette, or the COLORCRAFT diskette into your disk drive. The labels must be face up.

With a cassette, make sure the tape is at the beginning by pressing the REWIND button. When the tape stops, press the STOP button to shut off the datasette.

With a diskette, be sure to gently push the diskette into the drive and close the disk drive door.

1.2 Loading the COLORCRAFT Program

o To Load COLORCRAFT from Cassette

Locate the key labelled RUN/STOP on your computer keyboard. Press the SHIFT key and the RUN/STOP key at the same time. The screen monitor displays the message **'PRESS PLAY ON TAPE'**. (Repeat this step if message is not displayed.)

Press the PLAY button on the datasette. The message **'OK'**, **'SEARCHING'** is displayed. As soon as the COLORCRAFT program is found, the messages **'FOUND CCLOADER'** and **'LOADING'** are displayed. **(On the Commodore 64, the screen will now blank. Press the space bar for the program to continue loading.)**

After the tape is loaded into memory, (it takes about two minutes), the tape stops turning, the screen blanks, and the COLORCRAFT title page appears. To turn off the datasette, press the datasette's STOP button.

o To Load COLORCRAFT from Diskette

Type **LOAD"*",8** (CR). (After most input, you must press the RETURN key. Throughout the COLORCRAFT manual we indicate this with a '(CR)'.) The program will then display **'SEARCHING FOR *'**. Once the program is found, **'LOADING'** will be displayed on the screen while the program is loaded into memory. Upon completion of a successful load, **'READY'** is then displayed. Type, **RUN** (CR).

***Please Note:** If the **'?LOAD ERROR'** or a Syntax error message is displayed, move the datasette away from your computer and TV. This should eliminate any possible interference. If the problem persists, return your tape to your dealer.

1.3 Adjusting Your Monitor

Once the COLORCRAFT program is loaded, the screen is erased and turns white. You will see the title COLORCRAFT displayed with blinking colors. This is a good time to adjust your TV colors so they are pleasing to you.*

On the 'front' side of the first eight number keys (found on the top row of the keyboard) are abbreviations for specific colors. A description of each follows:

#Key	Abbrev.	Color	Description
1	BLK	Black	Coal Black
2	WHT	White	White
3	RED	Red	Cherry Red
4	CYN	Cyan	Light Blue
5	PUR	Purple	Violet Red
6	GRN	Green	Aqua Green
7	BLU	Blue	Dark Blue
8	YEL	Yellow	Yellow Green

***Please Note:** If you are using a Zenith TV, press the **'F7'** key (right hand side of keyboard) to set the "interlace" mode. This improves the picture quality. Press the **'F7'** key again to turn off the interlace mode. (On other TVs, this key causes the picture to start vibrating.)

For VIC 20 Users: On some televisions, the program screen is not quite centered. Press **'F3'** to move the program screen down, or press **'F5'** to move the screen to the right. If you happen to move the screen further than you want it, keep pressing either key. The screen will then be set back to its original position.

1.4 The Command Line

To begin the COLORCRAFT program, press the **'F1'** key. The title page disappears and is replaced by the 'Command Line'. The memory has just been erased and the following standards have been set:

Screen Size 21 X 22 Characters(VIC)
21 X 40 Characters(C64)

Border Color Black

The Command Line is the heart of the program. This is where we 'command' or instruct the program to do what we want it to do. After completing each command, return to the Command Line by pressing the STOP key. Here is a sample of the Command Line:

```
PAGE    ?    EDIT  RUN   LOAD
(1)          *     FORM  SAVE
```

***Please Note:** There are five basic commands in the COLORCRAFT program. A description of each follows on the next page. However, for the Commodore 64 or the VIC 20 with an 8K or 16K memory expander, a 'COPY' command has also been

provided. The '*' in the preceding sample Command Line, marks the position where the COPY command would be displayed.

Command Line Summary

F	Enter FORM	To change the size of the screens and/or the border color.
E	Enter EDIT	To type or change characters on the screen. To set the time and color for the current page.
F1	(Function key)	To go to the next page.
SHIFT F1	(Function key)	To go to the previous page.
C	Enter COPY	To copy from one page to another.
R	Enter RUN	To set pages in motion for 'action'.
L	Enter LOAD	To bring screens that had been stored into memory.
S	Enter SAVE	To store screens that are in memory, for later use.

CHAPTER II DESIGNING YOUR OWN SCREEN

2.1 The FORM Command

Through the FORM command, you can change the standard COLORCRAFT page size, and border color. Press 'F' to enter the FORM command. The following Command Line will appear:

MP*	PL	PW	DIM
12	21	22	1

The abbreviations on the Command Line are MP for Maximum Pages, PL for Page Length, PW for Page Width, and DIM for Dimension Number. The values shown are the 'standard', default values, (before any changes have been made by you).

***Please Note:** On the Commodore 64 version, this column is marked **'MXP'**.

2.2 Choosing Your Border Color

To choose your Border Color, press the **'F3'** Function key on the right hand side of the keyboard, until the desired border color appears. There are eight possible colors, as we discussed earlier (See Section 1.3 Adjusting Your Monitor).

2.3 Choosing the Screen Dimension

The value under the letters DIM indicates the dimension number of the screen. With each dimension number is a screen size and a maximum number of pages. To change the dimension of the screen, press the **'F7'** Function key.

***Please Note: Use the 'F7' key with caution because by changing the dimension, you will erase anything in memory.**

Here is a list of the many dimension numbers, their corresponding page lengths/ widths, and their maximum pages for the Commodore VIC 20:

Dimension Number	Page Length	Page Width	Maximum Pages VIC	8K	16K
1	21	22	1	6	12
2	18	18	1	8	16
3	15	15	2	9	18
4	10	10	3	14	28
5	5	10	5	25	50

Here is the Commodore 64 list:

Dimension Number	Page Length	Page Width	Maximum Pages Tape	Disk
1	21	40	6	25
2	18	36	7	32
3	15	30	11	46
4	10	20	23	100
5	10	10	46	200

To return to the Command Line, press the **STOP** key.

CHAPTER III EDITING WITH COLORCRAFT

3.1 The COLORCRAFT Editor

Press the 'E' key to enter the COLORCRAFT Edit mode. In the editor, you actually create each screen by adding or changing characters on the screen, as well as setting the time and color for each individual page. An example of the COLORCRAFT Edit Command Line follows:

```
PAGE  LN  PO  D  TM  SC
  3    1   1  0   1   1
```

From this example, you can see that the Command Line keeps a record of the **page** you are currently working on, the **line** number, the **position** number, the **direction**, the **time** length for each screen, and the **screen color** used.

3.2 Choosing the Cursor Color

In the upper left hand corner of the screen is a black blinking box. This is the cursor. Black is the standard/default value of the cursor.

To change the color of the cursor, hold down the key marked 'CTRL' and press the desired color found on the front of the number keys one through eight. You will not be allowed to change the cursor color to the color of the screen.

For the Commodore 64: To access eight additional colors, use the 'COMMODORE' key with the number keys. (See Sect. 3.7 Choosing the Screen Color)

3.3 Solid Blocks and Reverse Mode

o Reverse Printing of Characters

To enter the Reverse mode, hold down the 'CTRL' key and press the number '**9**' key (marked '**RVS ON**'). The cursor now blinks rapidly to signal that you are in Reverse mode. In Reverse mode, the characters look like they are carved out of a solid box. Use the space bar to draw solid blocks.

Experiment with the Color keys and the Reverse mode until you feel comfortable. Draw your favorite scene, or simply type your name in Normal mode and Reverse mode. To return to Normal mode, press the '**CTRL**' key and the number '**0**' key (marked '**RVS OFF**') at the same time.

o Normal Printing of Characters

Each character on your computer is made up of little dots called '**pixels**'. These pixels are arranged on an 8 X 8 grid. In the Normal mode, each dot that is 'ON', will be the cursor color. Each dot that is 'OFF', will be the screen color. (In Normal mode, the cursor blinks slowly.)

Here are grid samples of the letter 'N'. An '*' specifies a dot is 'ON'.

Normal Mode	Reverse Mode
* *	* **** *
** *	* *** *
* * *	* * ** *
* * *	* ** * *
* **	* *** *
* *	* **** *
* *	* **** *

3.4 Choosing the Character Set

Use the back arrow key (arrow pointing left), located on the top left corner of the keyboard to change from Uppercase/Graphics to Lowercase/Uppercase and vice versa.

3.5 Cursor Movement

In COLORCRAFT, every key repeats and moves the cursor one position to the right when it is held down. Simply look at the top of the screen to find your exact location on the screen, (i.e., the 'LN' number for the line number, and the 'PO' number for the position on the line).

If you try to type on the last position of a line, the program will 'beep' and place you at the first position of the next line, (i.e., this is called 'wrapping around'). To move the cursor without typing characters, press the CRSR keys (with or without the SHIFT key) that are located at the bottom right hand corner of the keyboard. Simply follow the direction that the arrows specify in order to know

when to hold down the SHIFT key.

Press the **CLR/HOME** key if you want to go directly to the upper, left hand corner of the screen. This is the cursor's **HOME** location (line one, position one). Every time you enter the Edit mode, the cursor will be placed in the Home position. Practice moving the cursor to the left, right, up, down, and Home positions.

3.6 Editing the Data

Sometimes when we are creating a screen, we make a mistake. Simply move the cursor over to the position that you want to change and type the new character. With this method, you must also retype the rest of the line. Continue reading to learn about other editing keys.

3.6.1 Correcting within the line

Locate on your keyboard the INST/DEL key. This key allows you to either insert or delete a space.

Press the **INST/DEL** key to delete the character to the left of the cursor, and move the rest of the line one position to the left. For example:

Before	**After**
This is COLOURCRAFT.	This is COLORCRAFT.

To insert a blank space, press the SHIFT key and INST/DEL key at the same time. This command opens up one blank space and moves the rest of the line one position to the right.* This is called inserting. For example:

Before	After
This is COLOCRAFT.	This is COLORCRAFT.

3.6.2 Clearing the line or screen

To blank out (erase) an entire line, hold down the SHIFT key and press the CLR/HOME key.*

Before	After
A - Apple	A - Apple
* B - Ball	
C - Candy	C - Candy

To erase an entire screen, move the cursor to the HOME position and press the SHIFT key and the CLR/HOME key.*

***Please Note:** Once the text is forced off the screen, it cannot be brought back.

3.6.3 Line editing (Available on the Commodore 64 and the VIC 20 with Memory Expansion)

- **Deleting a line**

To remove an entire line, hold down the CTRL key and press 'D' for DELETE. This also causes the rest of the lines on the page to move up one line.

Before	After
A - Apple	A - Apple
* B - Ball	* C - Candy
C - Candy	

- **Inserting a line**

To open up the space for another line, hold down the CTRL key and press 'I' for INSERT. (This also moves the remaining text down one line on the screen.)

Before	After
A - Apple	A - Apple
* C - Candy	*
D - Donut	C - Candy

o **Centering a line**

To center the characters in a line, hold down the CTRL key and press 'C' for CENTER. This command automatically calculates where to place your text so that the margins on both sides are equal. COLORCRAFT will not allow you to CENTER a line with no text on it (a beep will sound).

Before		After	
VIC 20		VIC 20	
---	-------	-----	-----
3	7	5	5

(Distance from margins)

3.7 Choosing the Screen Color

Each page is able to have its own color. You have the choice of one of the computer's primary colors, or eight other colors.

Press the 'F3' Function key to change the Screen Color. Look for the letters 'SC' on the top of the screen with a number underneath them. This number represents the page's color as taken from the Screen Color chart .

As you press the **'F3'** key, you will step through the available colors in the order as shown. To set the Screen Color, simply release the F3 key once you have arrived at the desired color.

Available Screen Colors

0	Black	8	Orange
1	White	9	Light Orange
2	Red	10	Pink
3	Cyan	11	Light Cyan
4	Purple	12	Light Purple
5	Green	13	Light Green
6	Blue	14	Light Blue
7	Yellow	15	Light Yellow

3.8 Choosing a Page's Display Time

Each page has the ability to be displayed for a unique amount of time. The 'Timer',('TM' on the Command Line), is used by the RUN command to determine how long a page is displayed. The smaller the number is under TM on the Command Line, the less time the screen will be displayed; the larger the number, the more time the screen will be displayed. Time defaults to tenths of seconds, yet each screen can be assigned to display a full thirty seconds.

When first entering COLORCRAFT, each page 'timer' is set to one. In the RUN command, a page with a timer (TM) of zero is not displayed.

To set the timer, press the **'F5'** Function key. This causes the TM number (on top of the screen) to get larger.

To lower the TM number, hold down the SHIFT key and press the **'F5'** Function key.

When you are designing a screen which contains a lot of text, remember to press the 'F5' key to specify a large TM number. This will allow the screen to be displayed for the necessary amount of time for reading. The timer also allows you to 'freeze' action or create slow motion effects for cartoons and animation. (To calculate the exact amount of time a page will be displayed, see Section 5.1 Displaying Your Screens.)

3.9 Changing Pages

To move to the next page, press the **'F1'** Function key. To move to the previous page, hold down the SHIFT key and press the **'F1'** key. The page that is now displayed will have the correct page number and screen information listed across the top of the screen.

3.10 Adjusting the WINDOW Information

The **'WINDOW'** feature allows you to turn 'OFF' the Command Line information that usually appears on the top of the screen. To set WINDOW, hold down the SHIFT key and press the **'F7'** Function key. The top of your screen will begin to flash. Now, press a number between **'1'** and **'6'** to change the desired window.

Window	Information
1	Page Number
2	Line Number
3	Position Number
4	Direction
5	Page Timer
6	Screen Color

If the window is 'ON' (displayed), it will go 'OFF' (not be displayed) and vice versa. (This is called a TOGGLE switch). This feature allows you to control what information is displayed on the Command Line.

If you press any key other than '**1**' through '**6**', you will exit WINDOW and be placed back in EDIT mode. Also, the 'windows' that you turned 'OFF' will not be displayed until you repeat the above process or return to the Command Line.

3.11 Advanced Drawing

In COLORCRAFT, there is a special feature designed to help you draw lines. This feature is called DIRECTION. (Normally, the cursor moves one space to the right after each character is typed. This means that to draw a vertical line upward, we would have to type a graphics character, cursor up, then cursor left!) Here is a helpful Direction chart:

Direction Chart

```
4  3  2
5  X  1
6  7  8
```

Suppose we want to go in a straight upward direction. Look at the direction chart. Direction '3' on the chart is in the straight-upward position from the center point (the position of the X). To set DIRECTION, press 'F7'. You will notice the letter 'D' appears at the top of the screen with the cursor blinking underneath it. Now, press the number for the direction you desire. Any key other than '1' through '8' will cause DIRECTION to be set back to Normal mode.

Because all keys automatically repeat, just hold down the graphics key in order to draw in a DIRECTION. If a direction line is drawn into a border, the line will bounce off the border and continue in a new direction.

3.12 Exiting the Edit Mode

Press the STOP key to exit from the EDIT mode and return to the Command Line.

CHAPTER IV PAGE DUPLICATING

(Available on the Commodore 64 and the VIC 20 with Memory Expansion)

The COPY mode is used to duplicate the entire contents of one page to as many pages as you desire. When a page is copied, the Screen Color and the Page Time are copied along with the screen image. This is an especially useful feature for animation. (Then, all you have to change is a slight detail on each of the pages.)

Go to the screen which you want to duplicate. **(If the Command Line does not appear at the top of your screen, first press the STOP key.)** Press 'C' to enter the COPY command. The word 'PAGE' lights up on the Command Line and a blinking cursor appears over the number of current pages. This has now become your **'SOURCE PAGE', the page to be copied.**

Now, use the Page Movement keys **'F1'**,(to go to the next page) and SHIFT **'F1'** ,(to go to the previous page) to turn to the page where the data is to be placed. This page is your **DESTINATION PAGE.**

Press the 'C' key again to make a copy of the original screen. You will now see a duplicate of your original screen on the new (DESTINATION) page. Continue to use the Page Movement keys to make as many copies of the original screen as you desire.

Press the 'STOP' key to return to the Command Line.

CHAPTER V RUNNING YOUR PROGRAM

5.1 Displaying Your Screens

Now, after designing your screens, you will actually be able to RUN your program (have your screens displayed in sequence). Press the 'R' key.

The COLORCRAFT program displays each page that has its Page Timer set to a value other than zero. The value of the Page Timer determines the length of time that the screen will be displayed. **A pause occurs before your sequence is run.**

Display Time=Page Timer x Timing Interval

The Timing Interval is the constant that determines the overall speed of your COLORCRAFT run. The Timing Interval is measured in 1/60th seconds and represents the measured units of the Page Timer. It's default value is 6 units (1/10 seconds). However, the Time Interval may be as fast as 1 (1/60 seconds), or as slow as 30 (1/2 seconds). With the Page Timer set to the maximum of 90 and the Timing Interval set to the maximum of 30, the mmaximum screen display time of 45 seconds will be achieved.

o Changing the Timing Interval

Press **'F7'** to turn on the information windows. To make the display move faster, press the SHIFT key, along with the **'F3'** key. To slow down the screen displays, press the **'F3'** key.

5.2 More Fun with RUN

Here are several more commands that allow you to have a lot of fun displaying your screens:

- Press the **'F5'** key to reverse the direction that the screen moves (forward or backward).

- o Press 'F7' to watch the pages go by and see the TIMER counting.
- o Press 'F7' again to turn off the top window (Command Line).
- o Press 'SPACE BAR' to halt the display. (The timer actually 'freeze-stops' counting.)
- o Press 'SPACE BAR' to start the display moving again.

CHAPTER VI USING DATA FILES

6.1 SAVE a Program on Tape

The LOAD and SAVE commands enable the COLORCRAFT program to 'talk' to the datasette. With the SAVE command, you can record your computer's entire memory on cassette tape. This ensures that your work can be picked up at another time.

Place a blank cassette tape into the datasette. Press the 'REWIND' button. When the tape stops rewinding, press the 'STOP' button to shut off the datasette. Now, press the 'S' key on the computer keyboard to enter the SAVE command. After the prompt 'NAME:', input the name the data is to be saved under (CR). The screen prompts 'PRESS PLAY AND RECORD ON TAPE'. If by chance you do not see this message on your screen, repeat the above steps.

When the above prompt appears, press the 'PLAY' and 'RECORD' buttons down at the same time. The tape begins to turn, and the message, 'PRESS PLAY AND RECORD ON TAPE' disappears. After about two

minutes, (four minutes for 16K or the Commodore 64), COLORCRAFT will place you back on the Command Line .

Please Note: When saving a file, the tape will overwrite on any existing file. Before saving a file, be sure the tape is new or can be overwritten, or is positioned so that current files are not affected.

6.2 LOAD a Program From Tape

Place the tape you want to load into the datasette. Press the '**REWIND**' button. When the tape comes to a halt, press the '**STOP**' button to turn 'OFF' the datasette. Now, press the '**L**' key to enter the LOAD command.

After the prompt '**NAME:**', input the name the data is to be saved under (CR). The screen prompts '**PRESS PLAY ON TAPE**'. If by chance you do not see this message on your screen, repeat the above steps.

Press the '**PLAY**' button on the datasette. The tape will begin to turn and the message '**PRESS PLAY ON TAPE**' will disappear. After approximately two minutes, (four minutes for 16K or the Commodore 64), COLORCRAFT will return you to the Command Line. The data is now ready to be further edited or RUN.

*Please Note: If COLORCRAFT finds a file other than the filename specified, a blinking cursor returns to the screen. To continue searching for the filename previously specified, simply press (CR).

6.3 SAVE a Program on Diskette

Turn your disk drive ON. Place a formatted diskette into the disk drive. (Refer to the disk drive operator's guide for instructions on formatting a diskette.) Press an **'S'** to enter the 'SAVE' command. The COLORCRAFT program will then prompt for **'NAME:'**. Input the filename desired. The computer will search the diskette to see if that exact filename had already been used. If the filename had been used, the program will automatically replace the previous file with the current file.

6.4 LOAD a Program From Diskette

To load a program from diskette, press an **'L'** to enter the LOAD mode. After the prompt **'NAME:'**, input the name the data is to be saved under. The disk drive will search the diskette for this exact name. If the name is found, the program is loaded into memory. If the filename is not found, the error message **'FILE NOT FOUND'** is displayed. Also, if any error occurs, the appropriate error message is displayed (refer to your Commodore User's Guide).

6.5 Loading Sample Data Files

For your enjoyment and pleasure, we have included several sample data files.

Before proceding, be sure to have COLORCRAFT program loaded in memory.

To prepare for loading sample files from cassette:

- o Turn the tape over to the sample data file side
- o Rewind the tape

To prepare for loading sample files from diskette:

- o Insert COLORCRAFT disk in drive

To load sample files:

- o While on the Command Line, press the 'L' key.
- o Input sample file name (CR)

***Please Note:** If COLORCRAFT finds a file other than the filename specified, a blinking cursor returns to the screen. To continue searching for the filename previously specified, simply press RETURN.

SAMPLE DATA FILES

Computers	**Sample Files**
VIC 20	DRAGON and MOUTH
VIC 20 with 8K/16K	DEMO
Commodore 64	SAMPLE

Chapter VII ANIMATION

Animation is an illusion of movement. Animation occurs when pictures with sightly different changes or characteristics are displayed quickly. When viewing this series of pictures, you see movement (like a movie), instead of each individual picture (like a slide show). You may have previously been introduced to animation by using a flipbook. (A flipbook is a stack of cards with pictures on it. As you "flip" the cards, you see the pictures change so rapidly that it forms an animated cartoon.)

With COLORCRAFT, you can create your own **electronic** flipbook. Instead of using a stack of cards, you now have pages of computer memory. With the RUN command, you can flip through the pages fast enough to create animation.

Let's try drawing a mouth to illustrate COLORCRAFT animation. Press the RUN/STOP key to access the Command Line. Please input the following example:

1. Press 'F' to enter FORM mode.

2. Select your border color using the **F3** key (blue is nice).

If you are using the VIC 20 without a memory expander: You must also change the Dimension Number (DIM) using the **F7** key. This will give you at least four pages of memory to work with.

3. Exit the FORM MODE by pressing the **RUN/STOP** key.

4. Press 'E' to enter the EDIT mode. Select a screen color using the **F3** key. (Light beige provides a nice background for drawing a mouth.) Using the cursor keys, move the cursor to the middle of the screen.

5. Hold down the CTRL key and press the number '**3**' key (marked RED). This will turn the cursor red.

6. Hold down the CTRL key and press the number '**9**' key (marked RVS ON). This puts the cursor in REVERSE MODE and the cursor will now be blinking faster.

7. To draw the upper lip, hold down the space bar. Solid red blocks will appear across the line.

8. Press (CR). Repeat step 7 to make the lip wider.

9. Hold down the CTRL key and press the number '**2**' key (marked WHT). This will turn the cursor to white.

10. Hold down the CTRL key and press the key numbered '**0**' (marked RVS OFF). This puts the cursor back into NORMAL MODE and the cursor should now blink slower.

11. To draw a row of teeth, hold down the SHIFT key and press the '**Q**' key. This will display a round graphics character across the line.

12. Press (CR) and repeat the previous step to draw the bottom row of teeth.

13. Press (CR) and repeat steps five through eight.

Thus, you have created a mouth! However, we're not done yet. In order for there to be animation, our design (in this case, the mouth) has to also be on other pages.

If you are using the VIC 20 without a memory expander:

Press **F1** to go to the next page. Repeat steps four through twelve. This time press (CR) at least twice to create a blank line (opening) in the mouth. Then, draw the rest of the mouth as before. Repeat this procedure until all pages have a mouth on it.

Now, go back to every page and make slight changes so each mouth looks a little different. Then, skip ahead and continue at step 21.

If you are using a VIC 20 with memory expansion, or a Commodore 64:

Press the **RUN/STOP** key to exit from the editor. Now, press 'C' to enter the COPY MODE. Continue with the next set of instructions:

14. Press the **F1** key to move to the next page. Press 'C' to make your first copy.

15. Repeat step 14 for as many pages as you wish to include in your animation.

16. Press the **RUN/STOP** key to exit COPY MODE.

17. Press **'E'** to enter the EDIT MODE. Use the **F1** key to move to the second page.

18. Using the down cursor, position the cursor to just in front of the bottom lip. Hold down the CTRL key and press **'I'** for Insert Line. Watch the bottom of the mouth move down one line.

19. Press the **F1** key to move to the next page. Repeat step 18. This time insert two lines.

20. Repeat step 19 for as many pages as you have in your animation. Make changes to the mouth of every page. A suggestion is to add words or try making the mouth eat things.

21. Press the **RUN/STOP** key to exit the EDIT MODE.

22. Press **'R'** to run (display) your screens. You have just created animation!

23. For more fun, press **F7**. The pages will now be displayed with the timer.

Please Note: Pages that have their "time" (TM) set, are displayed with RUN. **If you don't want a page to be displayed, you must use the editor to set the TM to zero.** (See Section 5.2 MORE FUN WITH RUN.)

Now, be creative and make your own animations. If you think you designed something really special, send it to us. If we like it and want to use it, you will receive a cash prize. Our address is in the back of this manual.

Chapter VIII Printing Your Own Files

The following is a print program for accessing your COLORCRAFT files from BASIC. Type in the program, substituting the appropriate lines for the computer/configuration you are using (the replacement lines for each particular version are listed at the end of this chapter). Then, save the program on diskette or tape (see your Commodore manual under the 'SAVE' instruction).

FOR VIC 20 Without Additional Memory

```
5 A0=8096:A1=8200:D=1

10 POKE 56,INT(A0/256):POKE 55,
A0-256*PEEK(56)

15 CC$="CC/":INPUT "FILE NAME";FL$

20 FOR I=1 TO 22:RC$=RC$+CHR$(29):
DC$=DC$+CHR$(17):PD$=PD$+" ":NEXT

25 OPEN 2,D,0,(LEFT$("@0:"+CC$+FL$+PD$
,16)+",R,P")

30 INPUT "(D)ISPLAY (P)RINT ";DV$:IF DV$
<>"P" AND DV$<>"D" THEN 30

35 IF DV$="D" THEN DV=3
```

```
40 IF DV$="P" THEN DV=4

45 OPEN 1,DV

50 FOR I=-2 TO A1-A0:GET#2,A$:A$
=A$+CHR$(0):POKE A0+I,ASC(A$):NEXT

55 MP=PEEK(A0+7):PL=PEEK(A0+8)
:PW=PEEK(A0+9)

60 FOR I=1 TO 2*PW+1:GET#2,A$:NEXT

65 FOR P=0 TO MP-1:PRINT#1,CHR$(147)
CHR$(144)"PAGE "P+1" ";

70 PRINT#1,LEFT$(DC$,PEEK(A0+10)-1)

75 IF DV=3 THEN POKE 36879,PEEK(A0+14)
+16*PEEK(A0+15+P*3+4)+8

80 IF DV=3 THEN POKE 36869,PEEK
(A0+15+P*3+5)

85 FOR L=0 TO PL-1:PRINT#1,CHR$(146)LEFT$
(PD$,PEEK(A0+11));

90 FOR X=0 TO PW-1:GET#2,C$:CL
=ASC(C$+CHR$(0)):R$=CHR$(146)

95 R$=CHR$(168):IF CL>=128 THEN CL=CL-
128:R$=CHR$(162)

100 PRINT#1,R$;:POKE 646,CL:GET#2,X$

105 PRINT#1,X$;:NEXT:IF PEEK(A0+12)>1 AND
L<PL-1 THEN PRINT#1

110 IF DV=4 THEN PRINT#1,CHR$(8)
CHR$(13)CHR$(14);
```

```
115 NEXT:IF DV=4 THEN PRINT#1:PRINT#1:
GOTO 130

120 PRINT CHR$(19)CHR$(144)LEFT$(RC$,9)
"<PRESS A KEY>"

125 GET A$:IF A$="" THEN 125

130 NEXT:CLOSE1:CLOSE2:PRINT CHR$(147)
"FINISHED!":END
```

For VIC 20 (With 8K or 16K Memory Expansion)

Replace lines '5' and '15' with the following:

```
  5 A0=8096:A1=8200:D=1
 15 CC$="CC/":INPUT "FILE NAME";FL$
```

For Commodore 64 (With diskette)

Replace lines '5' and '15' with the following:

```
  5 A0=6400:A1=7018:D=8
 15 CC$="CC.":INPUT "FILE NAME";FL$
```

For Commodore 64 (With cassette)

Replace lines '5' and '15' with the following:

```
  5 AD=6400:A1=7018:D=1
 15 CC$="CC.":INPUT "FILE NAME";FL$
```

Appendix I GLOSSARY

Animation- The preparation of designs that create the illusion of motion.

BASIC- A computer programming language common to microcomputers. BASIC is often considered the easiest language to learn.

Border- The area between your display page and the viewable portion of your TV screen/monitor. The border creates a 'frame' around your display.

Byte- A location in the computer's memory. A byte consists of eight bits. Each bit is either 'ON' (set to one) or 'OFF' (set to zero). A byte represents a number between zero and 255. In COLORCRAFT, one byte is used for each character on the page.

Center- To position text so that there is an equal distance between the left and right margin. The COLORCRAFT Center command, automatically centers your text on a particular line. Use the INST/DEL key to manually center text.

Character Set- The set of images that are displayed after pressing keys on the keyboard. Commodore computers come equipped with two character set modes: Uppercase/Graphics and Uppercase/Lowercase. On a VIC 20, press the backarrow key to change between the two modes.

Clear- To have no text on a line or screen. The COLORCRAFT Clear command

erases a line or an entire screen.

Command- An instruction to the computer to perform a specific function, or enter a specific mode of operation. Generally, a command is implemented using a single keystroke or combination of keys.

Command Line- A list of choices from which we select one command at a time to instruct the program what to do next. Often, a Command Line is referred to as a 'Menu'. The COLORCRAFT Command Line is the heart of the program, and when displayed, is at the top of the screen.

Configuration- The way in which your computer is set-up with other peripherals, such as disk drives, datasettes, printers, etc.

Control Port- A small socket on the right side of the computer where a joystick, paddle, lightpen, or dongle can be connected.

Copy- To duplicate or reproduce an image. The COLORCRAFT Copy command allows you to duplicate an entire page as many times as desired (within the limitations of memory capacity). The original page to be copied is called Source; the page where the copy is placed is called the Destination.

Cursor- A small blinking box which indicates where the next character will be displayed on the screen, or where the next command will be carried out.

Data- Information which is in the computer's memory that is not part of the computer program. For example, the name of your file.

Datasette- A modified cassette tape recorder that is used to Load and Save programs or data.

Default- The assumed value of a program variable that is not modified or set by the user. In COLORCRAFT, the page timer default is 'one' and the cursor color default is 'black'.

Delete- The process of removing or eliminating characters or lines. To delete a character in COLORCRAFT, the program shifts all characters on the particular line, one position to the left of the cursor.

Destination- The place where something is sent or going. In COLORCRAFT, the COPY command duplicates a 'Source' page onto a 'Destination' page.

Dimension Number- The corresponding length, width, and maximum number of pages in your 'Form' size. For a given configuration, the amount of memory is constant. Therefore, the smaller your page length and width, the greater the number of available pages.

Direction- The relative position that the cursor moves after we type a character. Normally, the cursor direction is one position to the right. However, COLORCRAFT lets you set vertical, horizontal, and diagonal directions.

Disk,Diskette- A thin circular piece of magnetic media which is used for storing and retrieving data. More versatile than a cassette tape, a disk (also referred to as diskette) comes in a protective shield. After each use, a disk should be placed in a paper or plastic "sleeve" or "jacket". For maximum media life, store your disks in a cool, dry area. A disk can be thought of as being similar to a phonograph record album (i.e., both are round and both have information being stored on them which can be accessed with the proper equipment).

Disk Drive- The electro mechanical device that reads disks and can write on them. A disk drive can be compared to a record player (i.e., both are machines used to access a specific medium).

Display- The television or monitor used for a computer screen. Often, "display" also refers to the actual text shown on the screen.

Dongle- A small "security/software protection" device which plugs into the Control Port (located on the right hand side of the computer. A dongle must be present in order to use COLORCRAFT.

Edit,Editor- The process or capability of creating or changing the information on the screen. The COLORCRAFT editor allows you to move the cursor anywhere on the screen, as well as make screen changes very easily.

Enter- To input data or commands for the computer, press a key on the keyboard. The corresponding character will then be displayed on the screen. After you press the RETURN key, the data or instructions/commands will be interpreted by the computer. Generally, "enter" is used interchangeably with Input and Type.

File- A collection of data which is stored on cassette or disk, or resident in the computer's memory. A "file" (sometimes called a "data file") is usually assigned a name ("filename").

Flipbook- A series of pages forming a booklet. Each of the booklet's pages contain an image that is slightly different than the preceding one. When the booklet's pages are flipped, an illusion of movement/animation, is created.

Frame- A single page (or image) in an animated cartoon or flipbook. In COLORCRAFT, a "frame" is each individual display.

Function Key- Any of the keys marked F1 through F8 found on the right side of the VIC 20 or Commodore 64 keyboard. A Function Key is used to instruct the program to perform a specific capability or command.

Grid- A square that is divided into smaller units (sections) or points. A grid is sometimes referred to as a graph or matrix. Each character on the screen is drawn on an eight row by eight column grid.

Home- The upper, left corner of a page. The cursor is "Home" when it is in line one, position one.

Input- To enter/type data into the computer and press the RETURN key. (Also, see Enter and Type.)

Insert- To create space for additional text. When we insert in COLORCRAFT, the characters to the right of the cursor shift one position to the right. This opens up a free position directly in front of the cursor.

Interlace- To mix two video signals into one. With some Zenith televisions, display quality can be improved by placing the computer in "interlace mode".

K- A measurement of how much memory a computer contains. Each "K" equals 1024 bytes of computer memory.

Load- To bring a program or data file from a medium (with the assistance of a device such as a disk drive for a disk, or datasette for a cassette) into the computer's memory.

Machine Language- The set of numerical instructions that are understood directly by the microprocessor in the computer. This is much faster than the BASIC language which must be translated before being understood by the microprocessor.

Margin- The left or right most position on the line where text may be placed. Surrounding the margins are the border.

Memory- The internal storage for a computer. Memory is made up of locations called "bytes". Each byte can contain one character of programming instruction. The more memory your computer has, the more information you can store and access, and the more sophisticated your programs can be. COLORCRAFT is a good example of how additional memory allows you to have more powerful commands and additional pages (space).

Mode- A certain function of the program which enables you to use a special feature or features.

Modulator- An electrical device that converts or modulates the video output of the computer so that it can be received on channels three or four of your television set. On the VIC 20, the

modulator is a black box that is connected between your VIC and T.V. switchbox. On the Commodore 64, the modulator is built-in.

Normal Mode- When the cursor is in Normal Mode, it blinks slowly and all characters are displayed in the current cursor color.

Page- In COLORCRAFT, an entire screen or frame.

Page Timer- The timing variable that determines how long an individual page (screen) is displayed, before moving to the next page.

Pixel- One dot on the grid to help define a character. A character is made up of an eight by eight pixel matrix (grid).

Position- The current location of the cursor on a line.

Print- To draw, reproduce, or output text to a monitor (screen) or printer.

Prompt- A message displayed on the screen which expects a user's response. When trying to save a COLORCRAFT file, the program prompts you with "FILE NAME".

Reverse Mode- When the cursor is in reverse mode, it blinks rapidly and all characters are displayed in reverse video. (The characters look as if they are etched out of a solid, wooden block.) In reverse mode, press the "space bar" to create solid blocks.

Rolling Display- A capability to continuously display screens. A rolling display is a nice technique for advertising.

Run- To instruct your computer to start executing a specific program. In COLORCRAFT, the "Run" command sets your sequence of screens in motion.

Save- To output a copy of the computer's memory to a specific media (i.e., disk or cassette). A "Save" allows you to maintain the information for later use.

Source- With the COPY command in COLORCRAFT, the "source" is the original page which is duplicated. The "source" also applies to the programmer's copy of a machine language program.

Space Bar- The long blank key in the front of the keyboard used to generate blank spaces. In the reverse mode of COLORCRAFT, the Space Bar is used to draw solid blocks.

Tape- A medium for storing data or programs on standard cassettes.

Time Interval- In COLORCRAFT, a user determined value which sets your "RUN" (display of screens) to a constant. The "Time Interval" is measured in 1/60 seconds and represents the units in which the "Page Timer" is measured. The "Time Interval" default is 6 (or 1/10 second) units. However, the "Time Interval" may be as fast as 1/60 second, or as slow as 1/2 second. Thus, the "Time Interval" allows COLORCRAFT screens to be displayed for a maximum of 45 seconds.

Toggle,Toggle Switch- To strickly have two conditions: "ON" or "OFF". In COLORCRAFT, to "Toggle" a window that is "ON" means that it will go "OFF"; to "Toggle" a window that is "OFF" means that it will go "ON".

Type- To press keys on the keyboard and have them displayed on the screen. (Also, see Enter and Input.)

Window- In COLORCRAFT, "Window" allows you to "toggle" information boxes on top of the screen. Command Line information "windows" (parameters and values) can be toggled for display purposes.

Appendix II ACCESSORIES

As a service to our customers, we at SIM Computer Products, Inc. have made the following accessories available (please include the correct part number when ordering):

CCI-CV20M	**COLORCRAFT FOR THE VIC** (Cassette only)	$ 8.00
CCI-DV20M	**COLORCRAFT FOR THE VIC** (Diskette only)	$10.50
CCI-DC64M	**COLORCRAFT FOR THE C-64** (Diskette only)	$14.50
CCI-USR	**COLORCRAFT USER'S MANUAL**	$ 3.00
CCI-DGL	**SECURITY DONGLE**	$18.50
CCI-PRG	**PROGRAMMER'S UTILITIES** (The following are included:)	$15.00

- Detail File Structures
- Translation Program
- File Merge Program
- Block MOVE/COPY Program

CCI-TUT	**COLORCRAFT TUTORIAL** (Available 9/83, this manual teaches computer concepts using COLORCRAFT and includes illustrated examples and step by step instructions and explanations.)	$10.00

NOTE: Checks or money orders should be made payable to:

SIM Computer Products, Inc.

Send your check or money order to:

Sim Computer Products, Inc.
P.O. Box #7
Miquon, Pa. 19452

PLEASE ADD $3.00 FOR SHIPPING AND HANDLING CHARGES.

PENNSYLVANIA RESIDENTS ADD 6% SALES TAX.

ALLOW FOUR TO SIX WEEKS FOR DELIVERY.

WE WELCOME YOUR INPUT!

Please let us know what you thought of the COLORCRAFT program. Also, if you have any programs or ideas of your own, send a copy or description to us. If SIM feels your programs or ideas are unique and marketable, and decides to develop your product, you will receive **ROYALTIES.** All letters will be answered.

DISCLAIMER

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